

Community Acceptance of Carbon Dioxide Pipelines

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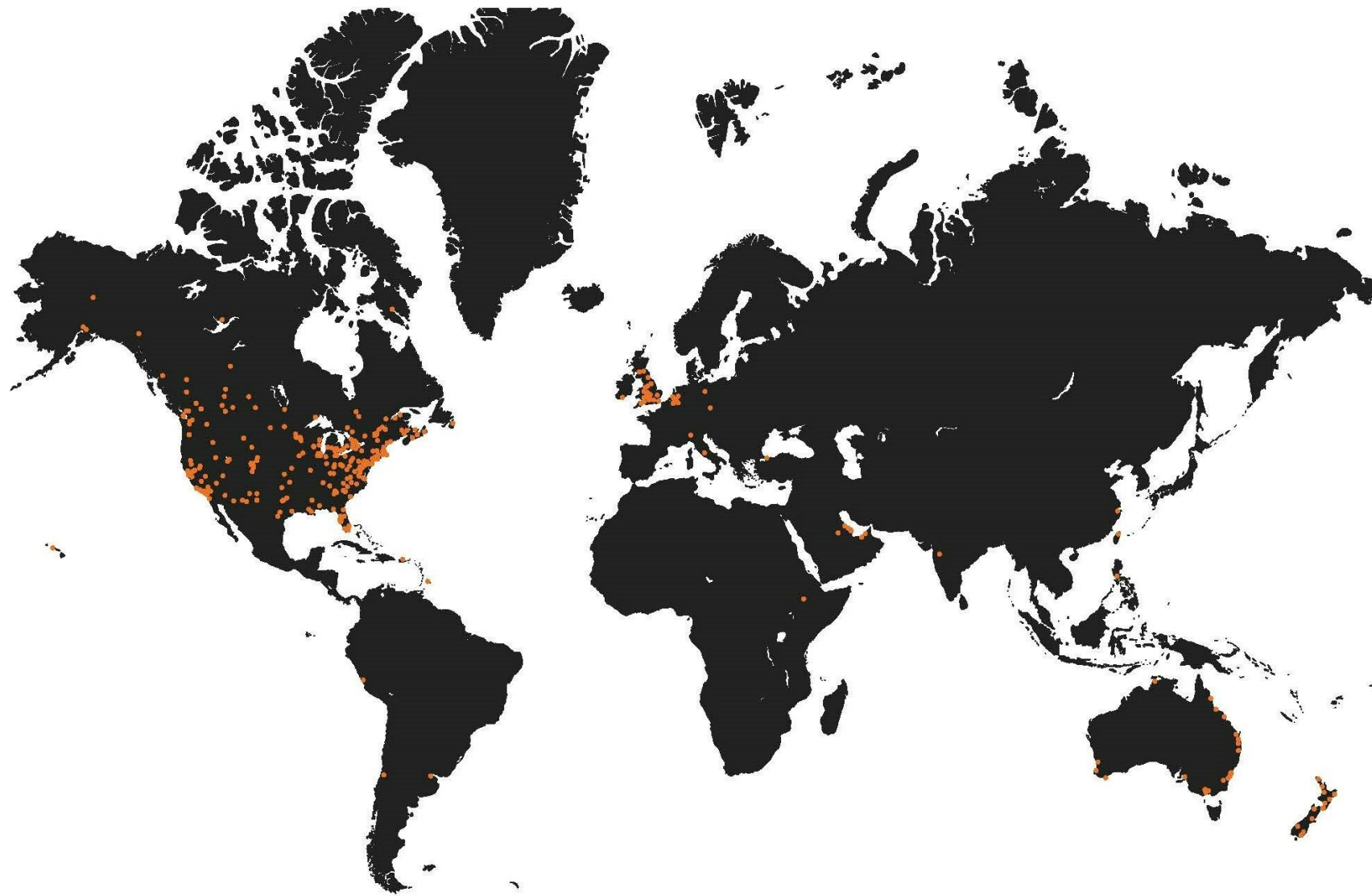
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32 Years in Environmental Permitting and Impact Assessment

Expertise in California permitting, energy transition, CEQA/NEPA

Education:

- B.S. in City and Regional Planning, Cal Poly SLO
- M.S. in Water Resource Management, Fresno State



Stantec at a Glance

1954

STANTEC FOUNDED

\$7.8 billion

MARKET CAP (\$CAD)

31,000

EMPLOYEES GLOBALLY

STN

TRADED ON NYSE & TSX

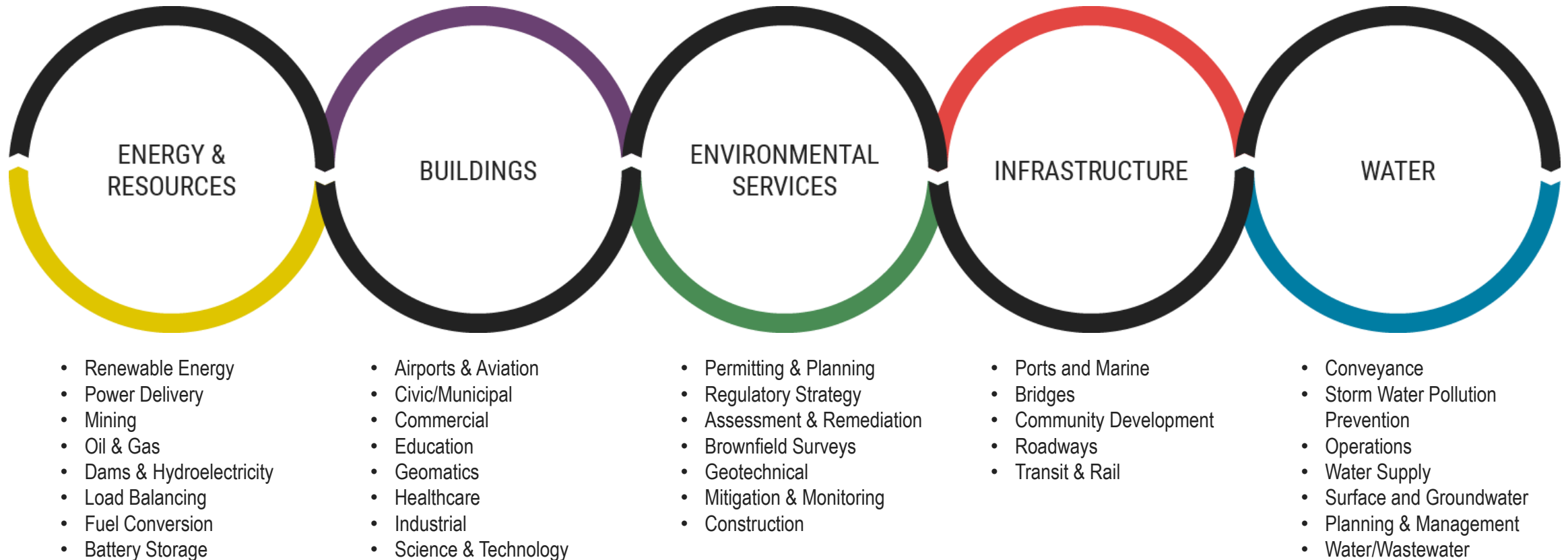
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CONTINENTS WE OPERATE IN

450

LOCATIONS WORLDWIDE

Stantec's Business Lines and Services





Agenda

1. Introduction
2. Opportunity
3. Key Community Issues
4. New Requirements
5. Best Practices
6. Conclusion and Call to Action



CO2 Pipelines

CO2 pipelines are new to most communities, but not to the oil and gas industry

Communities need to be educated on the risks of CO2 pipelines, and the measures being implemented to protect communities



2020 Satartia, Mississippi 24-inch Pipeline Rupture

- 24-inch supercritical-phase CO2 pipeline with 5% H2S
- Pipeline failed when heavy rains triggered a landslide, causing a full rupture of the pipeline
- 21,873-bbls of liquid CO2 released
- Release was located one-mile southeast of the town – CO2 release flowed down a valley to the town
- 200 residents evacuated, 45 residents sought medical attention
- \$4 million fine from PHMSA



Source: Yazoo County Emergency Management Agency

Common Community Reactions

Will my family be at risk?

Will CO2 be seep into my house?

Will pollution increase within my community?

Will it cause my car to stall in an emergency?





Draft PHMSA Regulations

49 CFR PARTS 190, 195, 196, AND 198

For CO₂ pipelines:

- Emergency planning zones for emergency response and public communications
- Prescriptive fracture control requirements
- CO₂ pipelines listed as highly volatile liquid
- Requirements for vapor dispersion modeling
- Changes for operations, maintenance and emergency manuals.

Applicable to CO₂ and hazardous liquids pipelines:

- Enhanced right-of way inspections for geologic hazards and reduced cover, specific requirements for agricultural areas
- Fixed vapor detection and alarm systems at specific facilities
- Change of service requirements



API Recommended Practice 1165 – Core Principles



OPENNESS AND TRANSPARENCY

Frank discussion, sharing of truthful, timely, and relevant information, and willingness to listen and learn and nurturing an environment of transparency.



INCLUSIVENESS

A deliberate effort to involve parties interested in the subject or action.



RESPECT

Considering and respecting others' points of view by listening to questions, understanding concerns, and allowing each other to share perspectives.



ACCESSIBILITY

Commitment to provide a variety of methods and opportunities for all interested stakeholders to participate.



RECIPROCITY

Communication and action for mutual benefit, listening as well as speaking, being responsive to inquiries and interests, and sharing responsibility for interactions and relationships.



EQUITY

Deliberation and decision-making that take into account the needs, circumstances, and resources of all stakeholders.

Best Practices – Community Engagement

- Identify community leaders and groups
- Prepare engagement materials (translate as needed)
- Prepare engagement plan that involves early and regular meetings with the community
- Attend community events to provide information
- Be willing to meet with opposition – dialogue can improve relations and reduce mis-information





Best Practices – Community Meetings

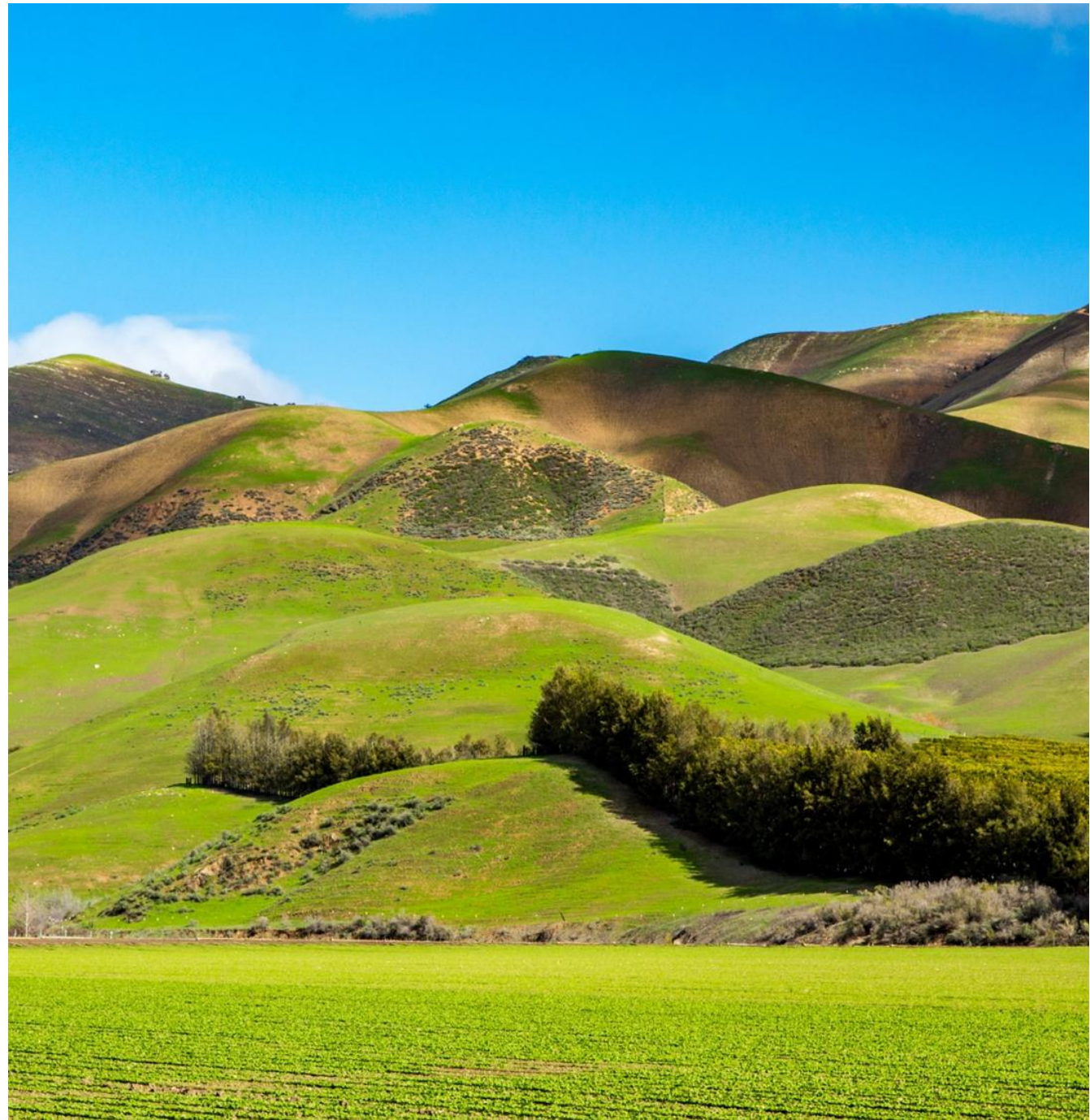
- Education – meet with the community early in the process to educate on CO₂'s properties and pipeline management practices
- Offer refreshments
- Speak in plain language, offer translation services for the specific community
- Invite regulatory staff and un-biased experts to participate
- Be open and forth-coming on hazards and risks
- Listen and follow-up on specific concerns
- Explain risk management practices





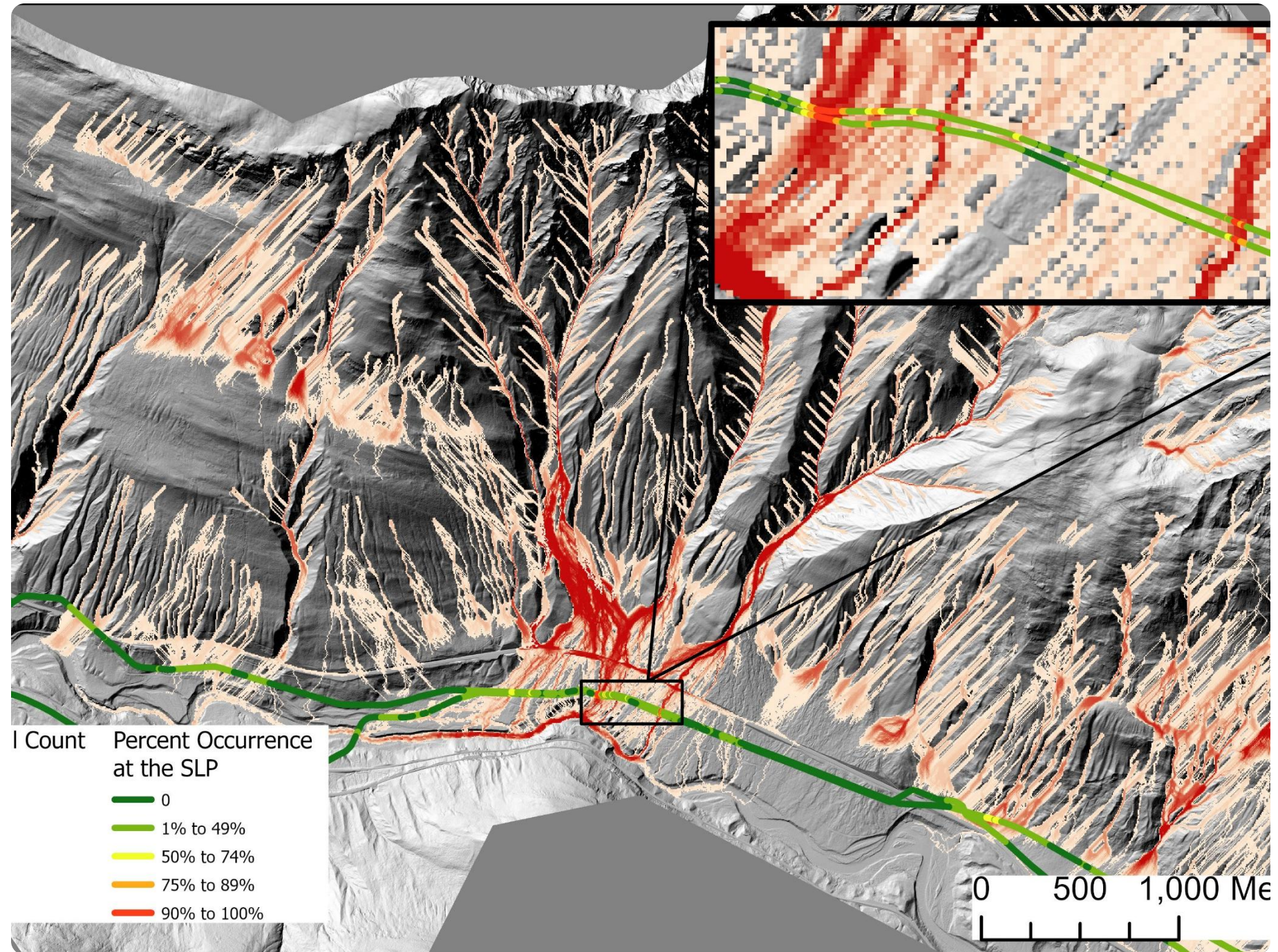
Landowner Concerns

- Use of street/public rights-of-way where possible
- Set-back from sensitive receptors (residences, group homes, schools, hospitals, clinics)
- Impacts to large property owners
 - Loss of farmland
 - Rangeland disturbance
- Landowner compensation
- Eminent domain



Environmental Concerns

- Impacts to wildlife, streams/rivers, wetlands, forests
- Cultural resources
- Dust and noise
- Traffic and road safety
- Impacts to utilities
- Geologic hazards (Debris Flow Predictor)





Environmental Justice

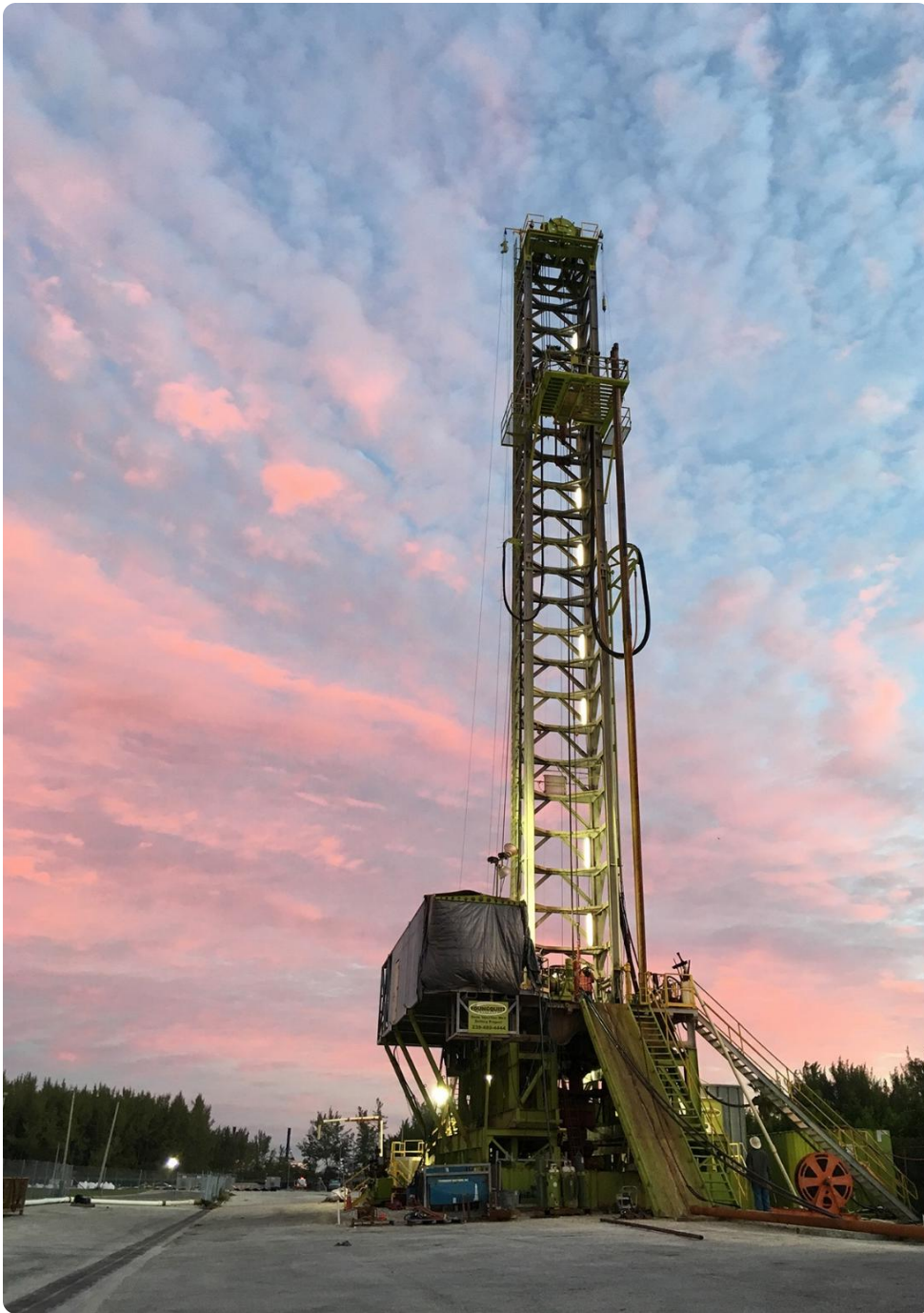
Recent Executive Order eliminated EJ Analysis – may still be required by state/local regulations

EJ groups are actively opposing CO₂ pipelines

Typical EJ Group Arguments:

- CCS promotes continued oil and gas development
- Will burden disadvantaged communities with high pollution burden
- CCS is a risky and untested technology
- CO₂ will leak, cause earthquakes, poison water supplies





Summary

- Engagement with local communities can be challenging, but early and often consultation will only improve understanding.
- Information sharing can reduce community fear and apprehension.
- Community Benefits Plans can help with community acceptance.
- Willingness to compromise on reasonable requests can build good will with community members.

Thank you

